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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/620,544	07/21/2000	Petro Estakhri	38979-11CPA2	2400

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LAW OFFICES OF IMAM
111 N. MARKET STREET, SUITE 1010
SAN JOSE, CA 95113

EXAMINER	
BRAGDON, REGINALD GLENWOOD	
ART UNIT	**PAPER NUMBER**
2188	

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/620,544	ESTAKHRI ET AL.	
	Examiner	Art Unit	
	Reginald G. Bragdon	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9-21-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 September 2004 has been entered.

Information Disclosure Statement

2. Documents A45 and A60 (of the IDS filed 21 September 2004, page 2 of 6) have been previously considered.

3. Documents B1-B45 (of the IDS filed 21 September 2004) have not been considered since the PTO-1449 does not identify the foreign patent or published foreign patent application by country or patent office which issued the patent or published application. See MPEP 609(III)(A)(1).

4. Documents C1-C32 have been crossed off the PTO-1449 filed 21 September 2004 since these documents were previously considered by the Examiner in the IDS filed 27 February 2004.

5. U.S. Patent 5,341,339 (Wells) on the IDS received 21 September 2004 has been crossed off the IDS since it was considered as document A128 on the IDS received 21 September 2004 (page 3 of 6).

6. Document AA (Lee et al.) was previously considered. A signed copy of the IDS was mailed to Applicant on 23 May 2003.

7. Documents A1-A73, B1-B20, and C1-C4 (sheets 1-5, received 21 September 2004)) were previously considered. A signed copy of the 5 pages of the IDS was mailed to Applicant on 16 January 2001.

Drawings

8. The drawings were received on 21 September 2004. These drawings are acceptable to the Examiner.

Claim Objections

9. Claim 5 is objected to because of the following informalities:

As per claim 5, line 4, "block" should "blocks".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 2-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Hasbun et al. (5,586,285).

As per claims 2, 3, 7, 11, and 15-17, Hasbun et al. teaches, with reference to figures 1 and 2, a host CPU 52, a solid state disk controller 64 ("controller"), and a FLASH memory array 62 ("nonvolatile memory storage") made up of a plurality of blocks, each comprised of a plurality of sectors (see figure 1; column 2, lines 39-42; and column 16, lines 62-64). Each sector of data within a block is identified by a logical sector number, or LSN. See column 5, lines 10-15.

Hasbun et al. teaches the logical address information locating a particular block and sector within the block, but calls the address information a logical sector number (LSN) instead of a logical block number (where Applicant's LBN is disclosed as identifying a particular block and a particular sector within the block). In Hasbun et al. a LSN is input into a sector header translation table (SHTT) (see figure 4), which outputs a 16 bit physical address consisting of a chip number, block number, and header pointer. See figure 4. The header pointer is used to identify a particular header within the block identified by the output block number, where the header includes a block sector offset (BSO), which points to the start of data (i.e. the physical sector address in the memory) associated with a particular LSN (see column 6, lines 11-23). See also column 9, lines 26-45.

Therefore, each block is identified by a predetermined group of logical sector numbers corresponding to the predetermined sectors located within the block, where the logical sector number of Hasbun et al. correspond to the logical block number of Applicant's invention (see the discussion in the previous paragraph).

With reference to figure 9, for a write operation received form the host to write a sector ("one or more sectors") to the FLASH memory array, the updated sector is written (step 256) to another block (selected by an allocate free physical memory operation, step 250). No other sectors stored in the old block are moved, and the header information for the updated block is modified, as is the sector header translation table to point to the most recent version of the sector data associated with the sector number (where the sector number is the logical sector identifier received from CPU 52, which the CPU 52 believes corresponds to a physical sector; see column 5, lines 13-15) (step 258). Therefore, Hasbun et al. teaches only writing the updated sector without moving the remaining sectors as described in column 16, line 59, to column 17, line 7.

The system updates the SHTT such that the input sector number from the CPU is associated with the new physical location of the most recent version of the data, i.e. the same sector number is used to point to the most recent version of the data for each sector moved ("caused to be identified by said group of logical block addresses"), just the physical address changes in the SHTT. See column 17, lines 17-20

As per claims 4, 8, 12, and 15-17, further write commands to further sectors would result in the process described in figure 9 of Hasbun et al. being repeated.

As per claims 5-6, 9-10, and 13-14, previous sector information will be moved at a later time, such as when the previous sector information is erased during a clean-up operation. See figure 17

Response to Arguments

12. Applicant's arguments filed 21 September 2004 have been fully considered but they are not persuasive.

With respect to Applicant's arguments that Hasbun et al. doesn't teach writing the updated data to a new block identified by the predetermined group of logical block addresses, this is not persuasive. First, Applicant has not pointed out specifically in Hasbun et al. where the LSN corresponding to a block changes when a write operation occurs, as alleged on page 9 of the response.

Second, as discussed in the previous action (mailed 30 June 2004), when a new version (i.e. updated) data is written to a new block (figure 9, after allocating a free physical sector in step 250), the sector header translation table is updated to point to the most recent version of the sector data associated with the sector number (where the sector number is the logical sector identifier received from CPU 52, which the CPU 52 believes corresponds to a physical sector; see column 5, lines 13-15). See column 17, lines 17-20. Therefore, the system updates the SHTT such that the input sector number from the CPU is associated with the new physical location of the most recent version of the data, i.e. the same LSN is used to point to the most recent version of the data, just the physical address changes in the SHTT.

Finally, it is noted that Applicant has set forth that identification of a block occurs using a "predetermined group of logical block addresses". Giving this limitation its broadest reasonable interpretation, a "predetermined group of logical block addresses" could comprise all logical block addresses in the system. Even if, arguendo, Hasbun et al. teaches changing the LSN when writing, then Hasbun et al. would still teach the limitation of a "predetermined group of logical

block addresses" since every LSN is considered part of the "predetermined group of logical block addresses" in Hasbun et al.

Conclusion

13. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

All "OFFICIAL" patent application related correspondence transmitted by FAX must be directed to the central FAX number at **(703) 872-9306**:

"INFORMAL" or "DRAFT" FAX communications may be sent to the Examiner at **(571) 273-4204**, only after approval by the Examiner.

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Fourth Floor (receptionist).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Reginald G. Bragdon whose telephone number is (571) 272-4204. The examiner can normally be reached on Monday-Thursday from 7:00 AM to 4:30 PM and every other Friday from 7:00 AM to 3:30 PM.

The examiner's supervisor, Mano Padmanabhan, can be reached at (571) 272-4210.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Reginald D. Bragdon
Reginald G. Bragdon
Primary Patent Examiner
Art Unit 2188

RGB
November 9, 2004